

Patent Claims

P.7335

1. An impeller for pumps, in particular radial pumps, said pump including one or more vanes (2a, 2'a, 2b, 2'b), characterised in that the impeller (1) additionally includes an intermediate wall (6) at which one or more vanes (2a, 2'a, 2b, 2'b) are provided on both sides, and in that at least one passage opening (3) is formed in the intermediate wall (6) in order to distribute a desired pump flow to the vanes (2a, 2'a, 2b, 2'b) on both sides of the intermediate wall.
2. An impeller in accordance with claim 1 wherein the impeller (1) has a suction side (5a) which is directed towards a suction opening of the pump, wherein the vanes (2b, 2'b) are connected on the side (5b) of the intermediate wall (6) directed away from the suction side to the suction side (5a) via the at least one passage opening (3).
3. An impeller in accordance with one of the claims 1 or 2 wherein the impeller (1) has a hub (4) and wherein a plurality of passage openings (3) are formed in a region of the impeller (1) adjacent to the hub (4).
4. An impeller in accordance with one of the claims 1 to 3, wherein the impeller (1) is open towards the suction side (5a) or towards both sides (5a, 5b) and/or wherein the vanes (2a, 2'a, 2b, 2'b) additionally include shortened vanes (2'a, 2'b), so-called splitter vanes.

5. An impeller in accordance with one of the claims 1 to 4 wherein the vane outlet edges (7) are chamfered on the suction side (5) and/or on the side of the intermediate wall (6) remote from the suction side (5b) in particular in such a way that the vanes (2a, 2'a) are shortest on the suction side (5a) in the radial direction, whereas the vanes (2b, 2b') on the side (5b) remote from the suction side of the intermediate wall (6) have outlet edges parallel to the axis.
6. An impeller in accordance with one of the claims 1 to 5 wherein the vanes (2a, 2'a, 2b, 2'b) are formed on both sides of the intermediate wall (6) in such a way that in the case of part load an ordered circulation occurs and the impeller has a characteristic curve which rises constantly, in particular rises constantly and clearly if the pump flow Q approaches 0.
7. An impeller in accordance with claim 6 wherein the vanes (2a, 2'a, 2b, 2'b) are designed differently on both sides of the intermediate wall (6) in particular that the vanes (2a, 2'a, 2b, 2'b) on both sides of the intermediate wall (6) have different chamfers of the outlet edges and/or different vane outlet angles β_2 and/or different numbers of vanes.
8. An impeller in accordance with one of the claims 1 to 7 wherein the impeller (1) has a specific rotational speed n_q in the region of 2 - 20 min.⁻¹, in particular in the region of 5 - 12 min.⁻¹.
9. A pump, in particular a radial pump with an impeller (1) in accordance with one of the claims 1 to 8.

10. A method for the operation of a pump, in particular a radial pump, with an impeller (1), characterised in that the impeller (1) is provided with a intermediate wall (6) at which one or more vanes (2a, 2'a, 2b, 2'b) are provided at each side and which is provided with at least one passage (3) which connects the two sides and in that a desired pump flow is distributed onto the vanes (2a, 2'a, 2b, 2'b) on both sides of the intermediate wall (6), in particular in that one part of the pump flow is fed through the at least one passage (3) from one side of the intermediate wall to the other side.